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PHTHISIS BULBI AND ARTIFICIAL EYES.

CLINICAL LECTURE DELIVERED AT THE NEW YORK POST-GRADUATE
MEDICAL SCHOOL AND HOSPITAL.

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BY WILLIAM OLIVER MOORE, M.D.,

Professor of Diseases of the Eye and Ear, New York Post-Graduate Medical School and
Hospital, and Woman's Medical College of the New York Infirmary, etc.

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Ophthalmology.

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GENTLEMEN,—The case before us illustrates a very important subject, and I shall take it as a text this morning. The patient is sixty-seven years of age, and is blind in each eye. In the right eye you will notice a shrinkage of the eyeball, known by the name of *phthisis bulbi*. It is the result of an injury which he received ten years ago. The left eye has only perception of light, owing to senile cataract. I shall speak of the *phthisis bulbi* this morning, and leave the discussion of the left eye for some future occasion.

The whole subject of the shrinkage of the globe brings up the very important question as to how we shall deal with such cases, both as to the cosmetic and the therapeutic effects.

You will notice that the globe itself is quadrangular in shape; and this is due to the attachments of the muscles to it, showing prominences, and the intervals between them, the shrinkage. As you feel of it you will notice that it is harder to the touch than is usual, and this hardness can best be defined at certain points, and is due to a calcification of the choroidal coat. This change in the interior tunic of the eye in such cases is frequently found, and in many there is a distinct cup-like formation observed upon opening such a shrunken globe. It is this limy deposit which often gives rise after a long time to an inflammation of the globe, and sets up oftentimes a sympathetic inflammation in the other eye, even though there be no foreign body introduced from without.

Phthisis bulbi may arise from two sources,—viz., either from inflammatory changes resulting from disease of the globe and arising *de novo*, or from traumatism. In either case vision is lost, and the

globe is shrunken to a greater or less extent, resulting in a marked facial defect. In a very general way it may be said that cases of phthisis bulbi, where there is no pain, should be left entirely alone; but if the patient insists upon having the cosmetic defect rectified, some simple procedure is necessary. Most surgeons are opposed to covering over such globes by an artificial eye, for the reason that the irregular prominences of the globe pressing upon the artificial member give rise to inflammation. Accordingly, where only the cosmetic effect is to be considered, the best treatment is enucleation of the globe, and the subsequent wearing of an artificial member in the orbital cavity. In no case would I advise the covering of a phthisical globe by an artificial eye.

In cases of phthisis bulbi which are the result of traumatism, where iritic or choroidal tissue is entangled in the scar, and where, from time to time, the patient has recurring attacks of inflammation brought about by wind or slight exposure, but without any evidences of sympathetic irritation in the other eye, it is better to resort to immediate enucleation, rather than to try any of the other methods which have been proposed with the idea of retaining the globe in position. In other words, it is better not to do the operation known as evisceration, where the eyeball is opened and its contents wiped out, and the remaining sclerotic tissue allowed to shrink up and form a nodule upon which may be worn an artificial member. The same may be said of the operation known as optico-ciliary neurectomy, in which the eyeball is left *in situ*, and the optic and ciliary nerves are severed at their attachments to the globe; the incision being made through the conjunctiva near the external rectus muscle, passing in behind the globe, and thus making the section subconjunctivally. The object of such an operation is to prevent sympathetic irritation of the other eye. It has been done by some of the best operators in this country, but at the present time it is generally discarded. Still another plan is the insertion of an artificial vitreous. This was suggested by an English surgeon, who introduced a glass globe into the interior of the phthisical globe, the contents of which had been wiped out, and the sclera was sewed up over this artificial vitreous. My experience leads me to disapprove of this method also, as it is liable to set up inflammatory change and possibly bring about sympathetic irritation of the other eye. Therefore, in any case where you have a phthisical globe, either quiet or irritated, where the patient desires it removed for cosmetic reasons, I wish to emphasize the fact that enucleation is the best and safest method of treatment.

In any case of phthisical globe produced by a foreign body entering the eye and remaining in it, it is wisest to remove it at once (even at the risk of not finding any foreign body in the cavity), for sooner or later, even though such eyes may remain dormant for years, they are liable to cause serious inflammation, not only of the injured eye but also of the opposite one.

In cases of enucleation of the globe, the question often arises as to what is the best method of performing the operation, and as to whether general or local anæsthesia should be employed. I would most emphatically recommend, in all cases where enucleation of the globe is to be done, that ether or chloroform narcosis be induced, for the reason that profound anæsthesia is necessary. Experience has taught that, although you may remove the eyeball under the influence of cocaine, used hypodermically or otherwise, the mental shock to the patient at the moment the eyeball is severed is very marked, and should be avoided. In addition to this, the pain is not entirely mitigated by this form of anæsthesia.

As regards the exact method of performing the operation itself, the details need scarcely be repeated now, for enucleation really consists in a universal tenotomy of all the muscles of the eye, and, in addition, a severance of the optic nerve. Plugging up the orbit with sponges or the like, after the removal of the globe, is, in my experience, unnecessary. It is much better to allow the speculum to remain in position for a few moments after the removal of the eyeball, and to cause some cold liquid, aseptic or not according to the operator's personal preference, to flow into the cavity, thus coagulating and removing such blood as may be present. In a few moments the eye may be closed without the introduction of any suture to close the sac. An ordinary compress is then applied over the lids in order to make uniform pressure, and the dressing is completed by the application of a flannel bandage over both eyes. Both eyes are bandaged because this secures greater rest and comfort. The wound in the conjunctiva usually heals in thirty-six hours. At the end of the first day, the bandage may be removed, the eyes cleansed, and cold-water dressings applied to the parts, or the dry bandage may be reapplied. At the end of ten days, as a rule, an artificial eye may be inserted. It is very rare, indeed, that any hemorrhage of moment occurs after such operations, although occasionally a thrombus will form in the orbital tissue behind the conjunctiva, giving rise to considerable swelling, the hemorrhage being so great as to cause percolation of the blood downwards, and discoloration of the entire cheek. It is not, however, of much importance, except

that when such a large thrombus occurs the healing process is delayed. Ordinarily the enucleation of the globe and the healing of the wound are among the simplest processes in ophthalmic surgery. In some cases where the conjunctival incision is very irregular after the removal of the globe, and it is feared that good coaptation will not be secured, a suture may be used to make the apposition of the parts more perfect.

The wearing of an artificial eye, although useful in covering up a defect, is, as I am told by those who have worn them, a great nuisance, and it was on this account that at the beginning of this lecture I stated that, unless there is some danger of trouble with the other eye, it is wiser not to remove it and substitute an artificial eye, purely for the cosmetic effect.

Artificial eyes may be obtained in all large cities, and in this city there are two manufacturers and many importers. It is much better to send cases needing these eyes directly to the manufacturer and have them inserted by him. This is our custom, the manufacturer returning the eye for our inspection and approval. Artificial eyes are usually made of glass, although in olden times they were made upon gold, and many interesting facts might be related with reference to these. It is told that in the time of Paré, not only the eye but the eyelids were made on enamelled gold, and were held in position by a large spring on the side of the head. During the French Revolution it is said that those wearing artificial eyes made on gold presented these to the French treasury to help along the patriotic cause. Formerly the best eyes were all imported from Paris, but now equally good ones are manufactured here. A curious instance is related of a Haytian general, who, having returned from a campaign against certain Spanish colonies, had lost an eye. He wrote to a celebrated manufacturer in Paris for an artificial one, and the manufacturer sent him what he considered a beautiful eye, in which the yellow color predominated, as the man was well advanced in years. As you know, the Spanish flag is yellow. The Haytian general returned the eye with great indignation, saying that he would wear no eye except that which had the colors of his own country. The colors of Hayti are principally red and green, so an eye of this description was made and sent to him. Shortly after the manufacturer received a notice that he had been honored by being made a member of some high order, and this announcement was accompanied by the statement that the general was so much pleased with the eye that he had decided not to wear it, but to have it drilled so that he might wear it around his neck with his other jewelry. Even Shakespeare speaks of the glass eye when Gloster says to King Lear, "Get

thee glass eyes, and like a scurvy politician seem to see the things thou dost not." Artificial eyes may be obtained at a cost of from four to ten dollars, although the actual cost of the material amounts to about fifty cents. The manufacture of these eyes is very interesting to witness, but most of the makers are loath to show you the process, although there is no secret in it except that some peculiar kind of glass is used by each manufacturer in making the cornea. The eye is blown into a globe, upon the anterior surface of which is engrafted a pupil in the shape of a dark glass, around which the iris is teased with other colored glass according to the colors desired. In front of this is placed the special glass used in making the cornea, giving the eye the appearance of possessing an anterior chamber, although the cornea is made of a solid piece of glass. The eye is then smoothed and burnished, and a portion of the globe containing this colored eye is cut out; the edges are rounded, and it is completed by the addition of red lines indicating the vessels.

Artificial eyes can usually be worn for only about one year, after which the enamel becomes worn off by the tears. They should be removed every night, and inserted again in the morning, after being thoroughly cleansed. The orbital space should be kept clean by the use of an alum solution, one drachm to the pint, morning and evening. This tends to relieve any congestion produced by wearing this artificial member.

Dr. William Oliver Moore
has removed to
No. 85 Madison Ave.

HOURS : 9-1.

AFTERNOONS BY APPOINTMENT.

Between 28th and 29th Fls.

